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Wind Power

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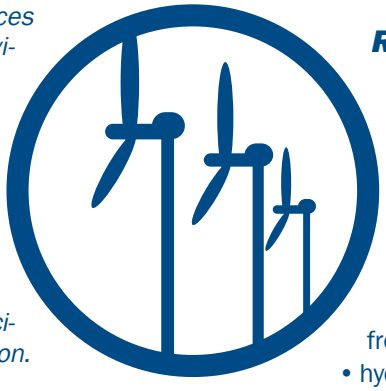
Did you know...?

The power generated by a single wind turbine in place of fossil fuels, can prevent 5,000 tons of CO_2 from being emitted into our atmosphere every year

What is Renewable Energy?

The most prominent energy sources used in the U.S. are coal, oil and natural gas. These are finite sources with significant adverse environmental impacts associated with their production, distribution and use. Renewable sources, such as solar and wind energy, provide a reliable, sustainable, and secure source of energy without the adverse environmental impacts associated with fossil fuel combustion.



Environmental Benefits Include:

- Sustainable energy supply
- Elimination of air pollutants, including SO_2, NO_x and particulate matter
- Elimination of Greenhouse Gas emissions
- Protection of water bodies from aquatic impacts of cooling water
- Security of energy supply due to increased domestic provisions

Renewable energy sources may include:

- wind energy—driven by the sun's heat
- solar energy
- biomass energy—derived from organic matter
- geothermal energy—tapped from Earth's internal heat
- hydropower—captured from flowing waters
- ocean energy—obtained from waves and tides

What is Wind Energy?

Wind can be used to generate electricity and mechanical power. Winds are caused by the uneven heating of the atmosphere by the sun, the uneven surface of the earth and the earth's rotation. Winds push the blades of wind turbines, and this kinetic energy is converted into mechanical power. A generator can then convert the mechanical power into electricity to be used in homes, businesses, schools or wherever else electricity is needed.

Advantages of Wind Energy

- Free source and low consumer cost
- renewable source, supply will remain constant
- clean, non-polluting source, will emit no green house gases or other air pollutants
- short construction period
- highly reliable
- generates jobs and promotes economic growth

How Can Wind Energy Benefit Me?

- Using wind energy ensures a secure and plentiful energy source for future generations. Your children's children will also be able to tap this sustainable source.
- Wind energy is the fastest growing energy source in the U.S., creating jobs and economic growth.
- Using wind energy will help offset the amount of greenhouse gases and other air pollutants emitted into the atmosphere. This will lessen the effect of global warming and ease the quantity of air pollution-related illnesses, such as asthma and cancer.

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- *The installed wind power capacity in the U.S. grew from 1,575 MW in 1991 to 4,258 MW in 2001—that's a 270% increase in just ten years!**

* *American Wind Energy Association*

	Non-renewable			Renewable
	Coal	**Gas**	**Oil**	**Wind**
Greenhouse Gas Emissions*	1 kg of CO2 per kWh	0.6 kg of CO2 per kWh	0.85 kg of CO2 per kWh	none
Other Emissions	NOx, SO2, particulate matter, mercury	NOx, SO2	NOx, SO2, particulate matter, mercury	none
Other Environmental Impacts	Mining, transportation, aquatic impacts from cooling water	Production facilities, pipelines, aquatic impacts from cooling water	Drilling (on and off-shore), refining, transportation, aquatic impacts from cooling water	Potential avian impacts

* *U.S. DOE, U.S. EPA; CO_2 emissions from the generation of electric power in the United States, July 2000*

Who's Using Wind Energy Now?

Wind energy has recently been the fastest growing energy source. The growth rate in 1998 and 1999 rose to 30%. The market has grown from $3.6 billion in 1999, to $13 billion today. In 1999, wind energy produced 21 billion kWh of electricity for 2 million households in the United States.

Wind Projects currently on-line in New England include the following locations:

Location	Size (in mega-watt capacity)
Searsburg, VT	6.0 MW
Princeton, MA	0.32 MW
Hull, MA	0.66 MW
Madawaska/ Aroostook, ME	0.05 MW
Orland/Deer Isle, ME	0.05 MW

This is your opportunity to learn about, promote, and support wind energy.

Resources:

- EPA Green Power Partnership—www.epa.gov/greenpower/
- Department of Energy - Wind Energy Program—www.eren.doe.gov
- American Wind Energy Association—www.awea.org
- National Renewable Energy Laboratory—www.nrel.gov

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